DOCUMENT RESUME

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PUB DATE [81]
NOTE 46p.; For related documents, see RC 013 920-926. Dr. I.R. Brooks is the developer of the test originally known as the Achievement Test of Indian Children (ATC).
PUB TYPE Tests/Evaluation Instruments (160)

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DESCRIPTORS *Arithmetic; Criterion Referenced Tests; *Elementary School Mathematics; Fractions; *Grade 6; Integers; Intermediate Grades; Quantitative Tests; Ratios (Mathematics); Test Items
IDENTIFIERS *Standardized Curriculum Oriented Pupil Evaluation

ABSTRACT

The SCOPE Mathematics Achievement Test booklet for grade 6 presents 12 mathematical concepts with instructions for students to take the test with little or no teacher direction. Testing items are: dividing with remainder, up to a six digit dividend by a three digit divisor; using correct order of operations in three-step problems; applying exponential notation as a shorthand when factoring and writing expanded notation; making practical applications of the arithmetic mean; dividing decimals to 1,000ths by whole numbers, and decimals to 10ths; evaluating fractions in decimal form to a stated number of decimal places; understanding and using the terms improper fractions and equivalent fractions; identifying equivalence; and adding and subtracting fractions with common denominators. Other tested items presented are: identifying percent; interpreting simple ratio situations; expressing and generating proportional ratios; using ordered pairs in all four quadrants; using simple ratio to produce and read scale drawings; using formulae for triangles, regular quadrilaterals, and rectangular solids; identifying triangles as equilateral, isosceles, or scalene; identifying parts of a circle; substituting in and evaluating simple formulae; solving simple equations; and identifying and ordering integers. (ERB)

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ED226941

Scope

Standardized Curriculum - Oriented Pupil Evaluation

MATHEMATICS

[1981]

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Test Book

Grade Six

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Northwest Territories Education

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2.3 Divides with remainder, up to a 6 digit dividend by a 3 digit divisor. Expresses remainders in decimal forms.

Look at this question. What is the answer? The answer expressed to 2 decimal places is 4.80. Write the decimal 4.80 beside P1 on page 31 of your answer book.

$$125 \overline{)600} \quad 4.80$$

Answer these questions. Write your answers to 2 decimal places. Write your answers on page 31 of your answer book.

1

$$250 \overline{)800}$$

2

$$325 \overline{)975}$$

3

$$450 \overline{)2\,000}$$

4

505)8 795

5

281)12 387

6

970)50 020

7

233)725 364

3.2 Uses correct order of operations in 3 step problems.

Look at this problem. Read carefully. What is the first thing you would have to do to solve the problem? Which mathematical equation states this? The answer is "c". Write "c" beside P2 on page 31 of your answer book.

Peter went to the store with a $20 bill. He bought 5 pairs of socks, gave the clerk the $20 bill and got $10 change. If he had bought 6 pairs of socks, how much would it have cost?
The first step in solving this problem is:
a. $10 ÷ 5 = $2
b. $2 × 6 = $12
c. $20 − $10 = $10

Read these problems carefully.
Which letter in each problem shows the step which the problem asks for.
Write your answers on page 31 of your answer book.

8

Mark has 12 dogs. 7 big dogs each eat 6 kg of food per week and 5 puppies each eat 4 kg per week. How much food does Mark need for his dogs each week.
The third step in solving the problem is:
a. 5 × 4 = 20
b. 20 + 42 = 62
c. 7 × 6 = 42

9

Susan's mother gave her $9.00. Susan gave $2.00 to her brother and spent $3.00 to go to the show. She bought popcorn and pop for $1.60. Susan's father gave her $5.00. How much money did Susan have?
The second step in solving the problem is:
a. $2.40 + $5.00 = $7.40
b. $2.00 + $3.00 + $1.60 = $6.60
c. $9.00 − $6.60 = $2.40

10

John wants to buy a new rifle that costs $225. He saves $15 per week for 6 weeks and is given $30 for his birthday. How much more money will John need to save to buy the rifle?
The third step in solving the problem is:
a. $225 - $120 = $115
b. $90 + $30 = $120
c. 6 × $15 = $90

11 Peter, Rob and John each borrowed $200 to buy supplies for a hunting trip. They shot 20 seals on the hunt and later sold the skins for $55 each. How much money was left after they had sold the skins and repaid their loans.

The second step in solving this problem is:

a. $1100 − $600 = $500
b. 20 × $55 = $1100
c. 3 × $200 = $600

12 Sam's boat uses 4 L of gas per hour. On a hunting trip, Sam ran the boat for 7 h the first day, 5 the second and 9 the third. If he took 90 L of gas with him, how much was left by the end of the third day?

The third step in solving this problem is:

a. 21 h × 4 L = 84 L
b. 7 h + 5 h + 9 h = 21 h
c. 90 L − 84 L = 6 L

13 Mary sews parkas at home. Each parka takes 2m of duffle and it costs Mary $15 for one metre. Other supplies for the parka cost $45. Mary sells each parka for $125. How much profit does she make?

The first step in solving this problem is:

a. 2m × $15 = $30
b. $125 − $75 = $50
c. $30 + $45 = $75

14 Susan bakes her own bread. Each loaf takes 0.5 kg of flour. Susan bakes 40 loaves each month, and flour costs $10 for a 10 kg sack. How much does it cost Susan for flour each month.

The second step in solving this problem is:

a. 20 kg ÷ 10 kg = 2
b. 2 × $10 = $20
c. 0.5 kg × 40 = 20 kg

5.3a Applies exponential notation as a shorthand when factoring (and writing expanded notation).

Look at this question. What is the correct exponent (power)? The answer is "2". Write "2" in the space beside P3 on page 31 of your answer book.

$18 = 2 \times 3^{2}$

Look at these questions. What is the correct exponent (power) for each? Write your answers on page 31 of your answer book.

15

$48 = 3 \times 2^{__}$

16

$125 = 5 \times 5^{__}$

17

$1024 = 2 \times 8^{__}$

18

$$54 = 2 \times 3^{\square}$$

19

$$768 = 3 \times 4^{\square}$$

20

$$1250 = 2 \times 5^{\square}$$

21

$$196 = 4 \times 7^{\square}$$

5.3b Applies exponential notation as a shorthand when (factoring and) writing expanded notation.

Look at this number. How can it be written using the exponent form of expanded notation. The answer is $(3 \times 10^2) + (6 \times 10) + (5 \times 1)$. Write $(3 \times 10^2) + (6 \times 10) + (5 \times 1)$ beside P4 on page 31 of your answer book.

$365 = (3 \times 10^2) + (6 \times 10) + (5 \times 1)$

Look at these numbers. Write each using the exponent form of expanded notation. Write your answers on page 31 of your answer book.

22

$2348 =$

23

$4521 =$

24

$9500 =$

25

79843 =

26

10490 =

27

42761 =

28

99872 =

5.4 Makes practical applications of the arithmetic mean.

Look at this question. Read it carefully. What was the average number of fish caught each day? The answer is 9. Write 9 beside P1 on page 32 of your answer book.

Bob went fishing for 3 days.
Day 1 he caught 9 fish. Day 2 he caught 11 fish.
Day 3 he caught 7 fish.
What was the average number of fish caught each day?

Answer = 9

Look at these questions. Write your answers on page 32 of your answer book.

29

John got 19 on a math test, Bob got 21 and Andy got 26. What was the average score?

30

Sam sold 3 wolf skins. He got $100 for one, $75 for another and $185 for the third. What was the average amount Sam received?

31

Jim went hunting for 4 days.
Day 1 he shot 2 caribou.
Day 2 he shot 7 caribou.
Day 3 he shot 4 caribou.
Day 4 he shot 3 caribou.
What was the average number of caribou shot each day?

32

John worked for 3 days.
Day 1 he earned $15.
Day 2 he earned $22.
Day 3 he earned $20.
What was the average amount earned each day?

33

In January Miss Jones had 21 children in her class. In February she had 28, in March she had 20 and in April 11. What was the average number of children in the class each month?

34

Joan goes babysitting. On Monday she earned $6.00, on Tuesday $9.25, on Wednesday $6.50, on Thursday $7.50 and on Friday $5.75. What was the average amount she earned?

35

Sam bought 1 L of milk at each of 3 stores. At one store it cost $1.10, at another $0.90 and at the third $1.21. What was the average price?

6.5 Divides decimals to thousandths by whole numbers, and by decimals to tenths.

Look at this question. What is the answer? The answer is 0.211. Write the decimal 0.211 beside P2 on page 32 of your answer book.

Example

$$3\overline{)0.633}$$

0.211

Answer these questions.
Write your answers on page 32 of your answer book.

36

$$5\overline{)0.755}$$

37

$$20\overline{)0.840}$$

38

$$0.8\overline{)0.928}$$

39

$0.6\overline{)0.108}$

40

$25.49 \div 100 =$ _____

41

$645.78 \div 1000 =$ _____

42

$789.32 \div 1000 =$ _____

6.6 Evaluates fractions in decimal form to stated number of decimal places.

Look at this fraction. What is the decimal number to <u>one decimal place</u> that goes with this fraction? The answer is 0.5. Write 0.5 beside P3 on page 32 of your answer book.

$\frac{1}{2} =$ 0.5

Answer these questions.
Write your answers on page 32 of your answer book.

43

Write this fraction to <u>two decimal places.</u>

$\frac{1}{4} =$ _____

44

Write this fraction to <u>one decimal place.</u>

$\frac{1}{5} =$ _____

45

Write this fraction to <u>one decimal place.</u>

$\frac{3}{5} =$ _____

46

Write this fraction to two decimal places.

$\frac{1}{7}$ = _____

47

Write this fraction to three decimal places.

$\frac{2}{3}$ = _____

48

Write this fraction to three decimal places.

$\frac{1}{8}$ = _____

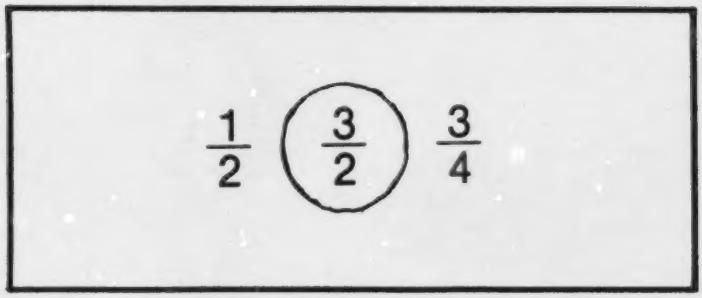
49

Write this fraction to three decimal places.

$\frac{1}{6}$ = _____

7.2 Understand(and use) the terms improper fractions, (equivalent fractions).

Look at these fractions. Which is the improper fraction? The improper fraction has been circled. Circle the improper fraction beside P4 on page 32 of your answer book.



Look at these fractions listed on page 32 of your answer book. Which are the improper fractions. Circle the improper fractions on page 32 of your answer book.

50

$\frac{9}{7}$ $\frac{3}{4}$ $\frac{17}{25}$

51

$\frac{10}{11}$ $\frac{2}{3}$ $\frac{39}{8}$

52

$\frac{23}{24}$ $\frac{7}{2}$ $\frac{8}{9}$

53

$\frac{4}{5}$ $\frac{13}{20}$ $\frac{10}{9}$

Fill in the blanks to make the following fractions proper fractions.

54 **Write your answers on page 32 of your answer book.**

$\frac{\quad}{4}$

55

$\frac{\quad}{6}$

56

$\frac{\quad}{7}$

7.3 Identifies equivalence, generates equivalent fractions for halves, tenths, hundredths.

Look at these fractions. What is the missing numerator? The answer is 5. Write 5 beside P1 on page 33 of your answer book.

$$\frac{1}{2} = \frac{\quad}{10}$$

$$\frac{1}{2} = \frac{5}{10}$$

Look at these questions. What are the missing numerators? Write your answers on page 33 of your answer book.

57

$$\frac{1}{5} = \frac{\quad}{10}$$

58

$$\frac{1}{4} = \frac{\quad}{100}$$

59

$$\frac{4}{10} = \frac{\quad}{5}$$

60

$$\frac{60}{100} = \frac{\quad}{5}$$

61

$$\frac{5}{10} = \frac{\quad}{2}$$

62

$$\frac{75}{100} = \frac{\quad}{4}$$

63

$$\frac{70}{100} = \frac{\quad}{10}$$

7.4 Adds and subtracts fractions with common denominators.

Look at this question. What is the answer? The answer is 3/4. Write "3/4" beside P2 on page 33 of your answer book.

$$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$$

Look at the questions carefully.
Write your answer on page 33 of your answer book.

64

$$\frac{4}{9} + \frac{4}{9} =$$

65

$$\frac{1}{7} + \frac{5}{7} =$$

66

$$\frac{3}{5} + \frac{1}{5} =$$

67

$$\frac{3}{4} - \frac{1}{4} =$$

68

$$\frac{7}{9} - \frac{2}{9} =$$

69

$$\frac{5}{6} - \frac{2}{6} =$$

70

$$\frac{2}{3} - \frac{1}{3} =$$

8.1 Identifies percent as a two place decimal and as a fraction with the denominator of 100.

Look at this question. How do you write 10% as a fraction and as a decimal. The answers are 10/100 and 0.10. Write 10/100 and 0.10 beside P3 on page 33 of your answer book.

$$10\% = \frac{10}{100} = 0.10$$

Look at these questions.
Write these percentages as fractions. Write your answers on page 33 of your answer book.

71

$$25\% = \frac{\quad}{100}$$

72

$$75\% = \frac{\quad}{100}$$

73

$$20\% = \frac{\quad}{100}$$

74

$$15\% = \frac{\quad}{100}$$

Write these percentages as decimal fractions.
Write your answers on page 33 of your answer book.

75

$$63\% = ____$$

76

$$38\% = ____$$

77

$$100\% = ____$$

8.2a Interprets simple ratio situations.

Look at this question. Read it carefully. What is the answer? The answer is 6. Write "C" beside P4 on page 33 of your answer book.

The ratio of blue to red marbles is 1:2. If there are 3 blue marbles, how many red marbles are there? 6

Read the following problems carefully.
Write your answers on page 33 of your answer book.

78

The ratio of length to width of John's boat is 3:1. It is 6 m long. How wide is John's boat?

79

The ratio of red books to blue books is 4:2. There are 16 red books. How many blue books?

80

The ratio of boys to girls is 5:6. There are 30 girls. How many boys?

81

The ratio of kilometres travelled to litres of gas is 18:1. There are 8 litres of gas. How many kilometres?

82

The ratio of children to teachers is 26:1. There are 156 children. How many teachers?

83

The ratio of the distance Jim can jump to his height is 8:2. Jim can jump 6.4 m. How tall is he?

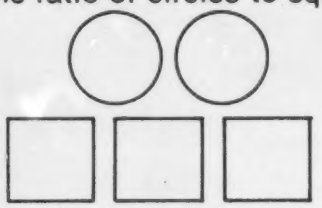
84

The ratio of the number of metres Mary can swim to the time it takes in minutes is 40:1. Mary swims for 22½ minutes. How many metres did she swim?

8.2b Expresses and generates proportional ratios.

Look at this question. What is the ratio of circles to squares? The answer is 2:3. Write 2:3 beside P1 on page 34 of your answer book.

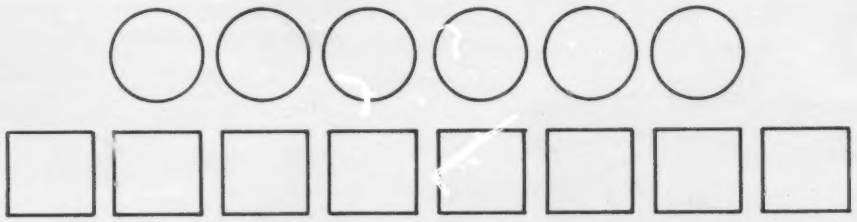
What is the ratio of circles to squares?



2:3

Answer these questions. Write your answers on page 34 of your answer book.

85



What is the ratio of squares to circles?

86

Peter has four dogs. Each dog eats six fish. What is the ratio of fish to dogs?

87

Three planes fly out of Igloolik each week. Each plane carries 20 people. What is the ratio of people to planes?

88

Mary has a recipe that calls for 400 mL of flour and 300 mL of sugar. What is the ratio of flour to sugar?

89

In Arctic Red River there are 4 trucks. All together they have 20 tires. What is the ratio of tires to truck?

90

John's house has an area of 200 m^2. Peter's house has an area of 400 m^2. Give the ratio of the area of John's house to the area of Peter's.

91

Mrs. Alook has 15 boys and 10 girls in her class. What is the ratio of boys to girls?

9.2 Uses ordered pairs in all four quadrants.

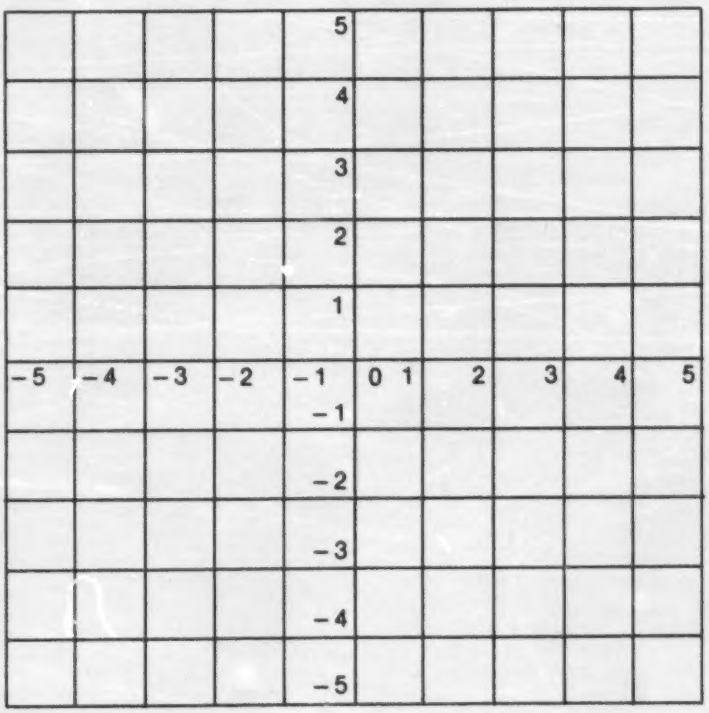
Read these instructions carefully.
Put the following ordered pairs on a graph.
Write your answers on page 34 of your answer book.

92 $(-3, 1)$

93 $(0, 5)$

94 $(-2, -3)$

95 $(0, 0)$



Look carefully at the graph below.

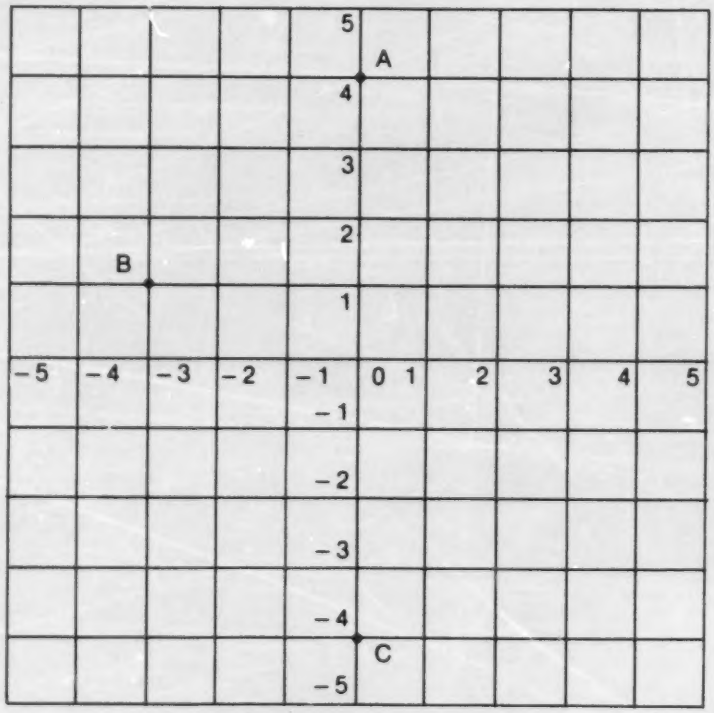
Write your answers on page 34 of your answer book.

Write the ordered pairs for the points marked

96 A

97 B

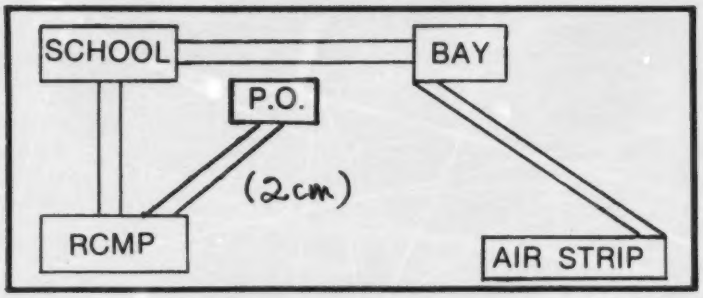
98 C



10.1 Uses simple ratio to produce and read scale drawings.

Use this map and a ruler to answer the questions below.

This map is drawn to a scale of 1 cm = 1 km. How far is it from the RCMP to the Post Office? It is 2 km. Write your answer beside P2 on page 34 of your answer book.



Look at these questions. Write your answers to these questions on page 34 of your answer book.

99

How many kilometres is it from the school to the RCMP?

100

How many kilometres is it from the school to the Bay?

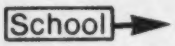
101

How many kilometres is it from the school to the airstrip by road?

Read these directions carefully.
Draw your answers to these questions on page 35 of your answer book.

102 The nursing station is 3 km south of the Co-op. Draw a road from the Co-op to the nursing station using a scale of 1 cm = 1 km. Mark the end of the road with an X.

103 There is a power station 2 km east of the school. Draw a road from the school to the power station. The scale is 1.5 cm = 1 km. Put an X at the end of the road.



104 Three airplanes are flying over a building. The scale is 1 cm = 100 m. Draw a line from the top of the building to the nose of the plane which is 600 m from it.

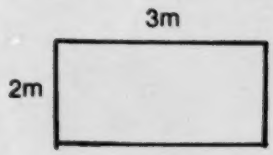
105 Tom built a rectangular dog-pen from some scale drawings. The dog-pen measured 200 cm wide and 350 cm long. Draw the dog-pen as it was shown on the drawings, using a scale of 1 mm = 10 cm

10.2 (Discovers and) uses formulae for triangles and regular quadrilaterals.

Use these formulae to answer the questions below.
Area of quadrilateral = l × w
Area of triangle = ½ × b × h.

Write 6m² beside P1 on page 35 of your answer book.

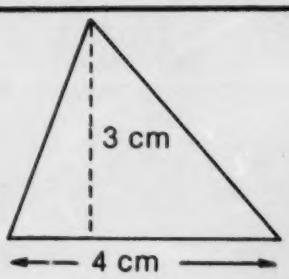
Example



Area = 6m2

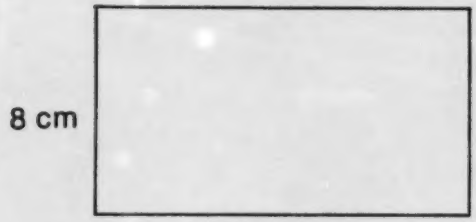
Look at these figures. What is the area of each one?
Write your answers on page 35 of your answer book.

106



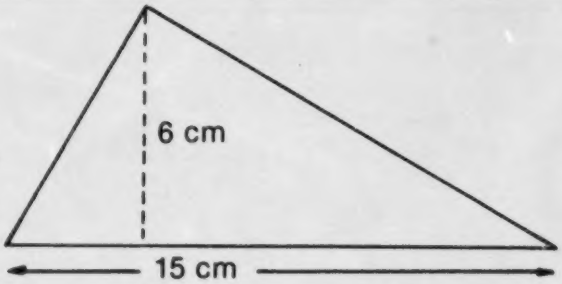
_____ cm²

107



_____ cm²

108

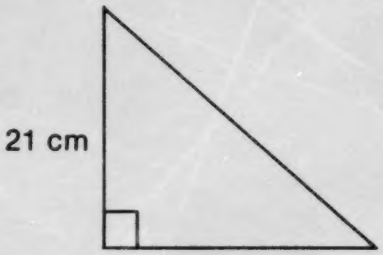


_____ cm²

109

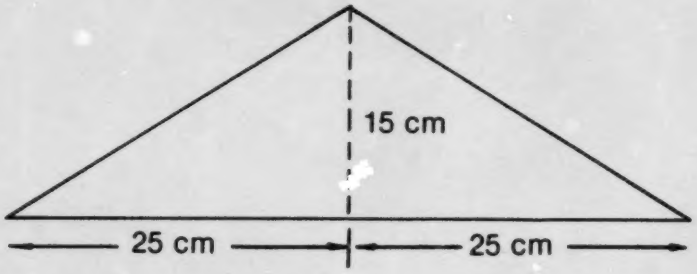
_____ cm^2

110



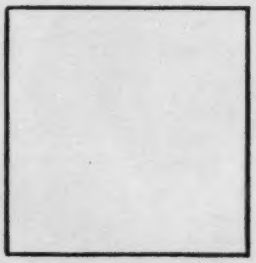
_____ cm^2

111



_____ cm^2

112

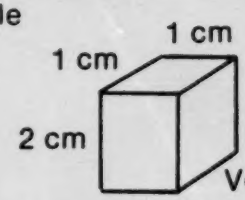


_____ cm^2

10.3 (Discovers and) uses formula for rectangular solids.

Use this formula to answer these questions.
Volume = l × w × h
Look at this box. What is its volume? The answer is 2 cm³
Write 2 cm³ beside P2 on page 35 of your answer book.

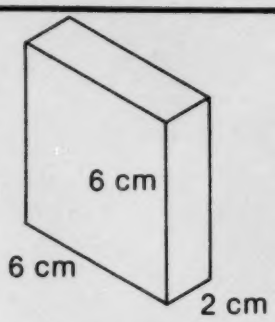
Example



Volume = 2 cm³

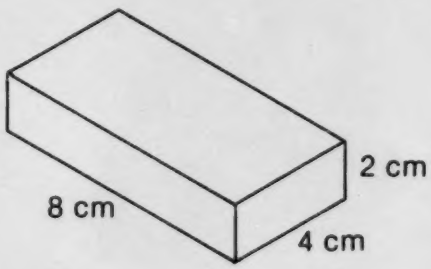
Look at these boxes.
Find the volume of each one. Write your answers on page 35 of your answer book.

113



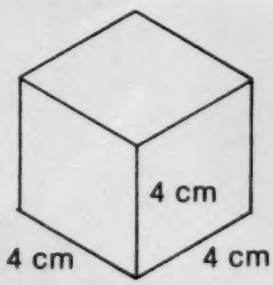
Volume = _____ cm³

114



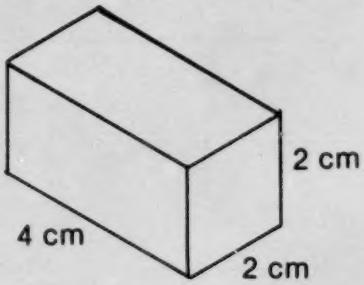
Volume = _____ cm³

115



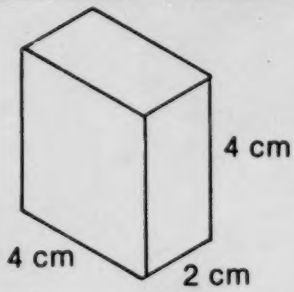
Volume = _____ cm³

116



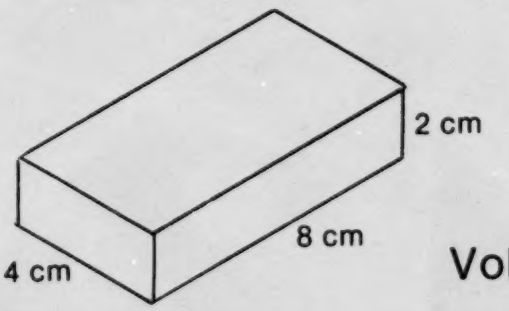
Volume = _____ cm^3

117



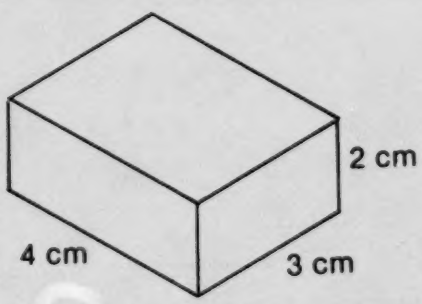
Volume = _____ cm^3

118



Volume = _____ cm^3

119



Volume = _____ cm^3

11.2a Identifies triangles as equilateral, isosceles or scalene.

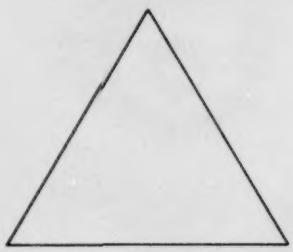
Look at this triangle. What type is it? It is a scalene triangle. Write S for Scalene beside P1 on page 36 of your answer book.

Example

S

Look at these triangles.
What type is each?
Write an E if the figure is an equilateral triangle, I if the figure is an isosceles triangle, S if the figure is a scalene triangle. Write your answers on page 36 of your answer book.

120



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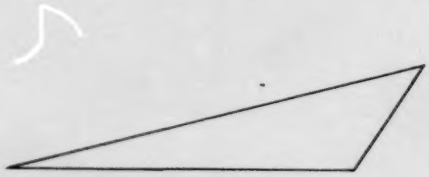

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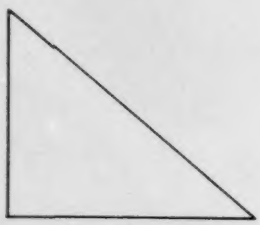
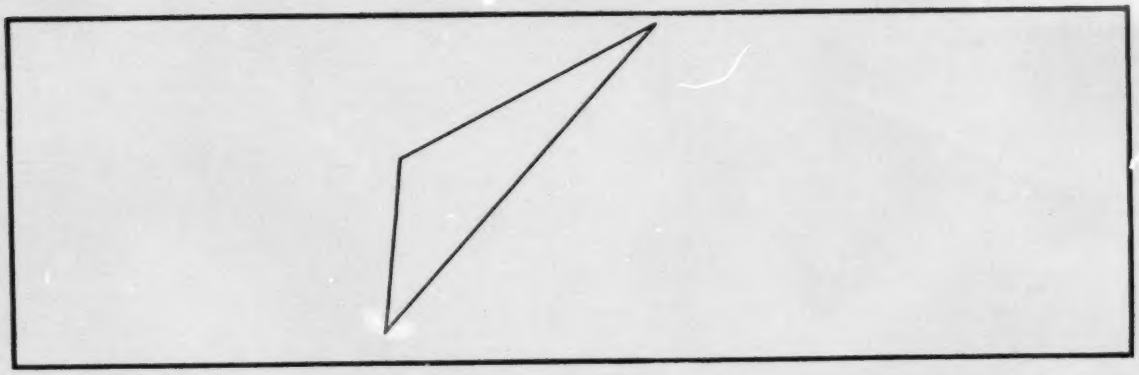


123



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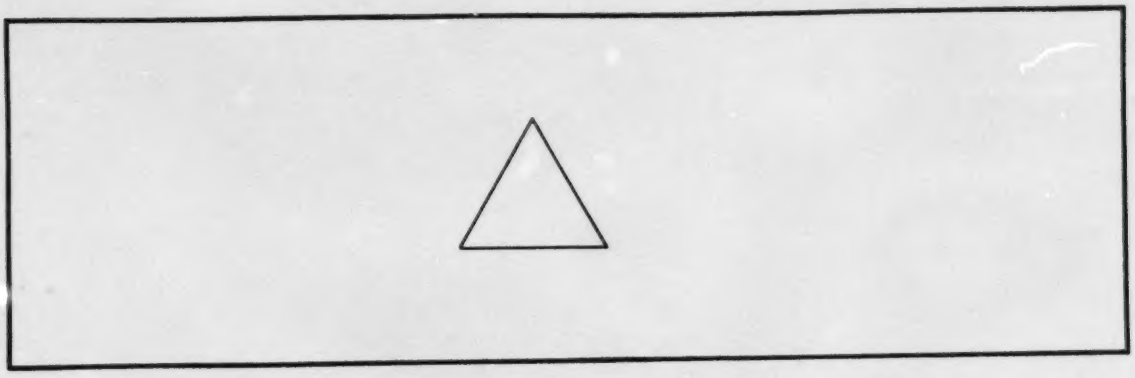
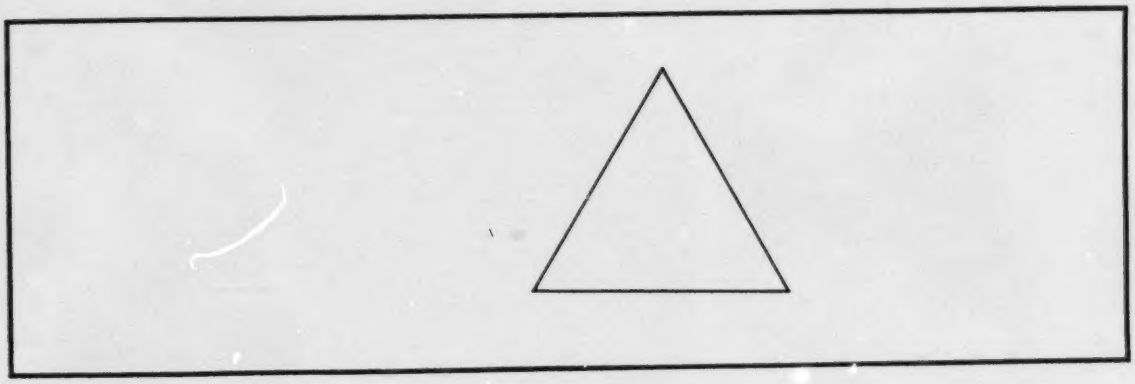
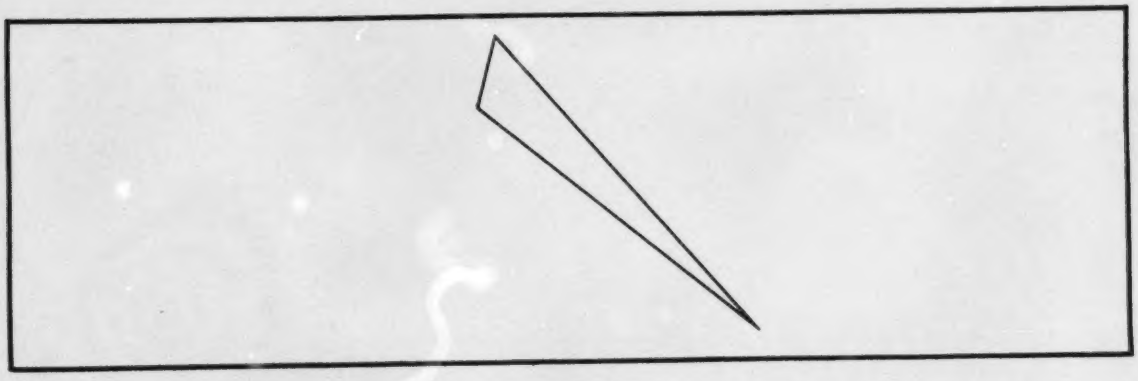


125

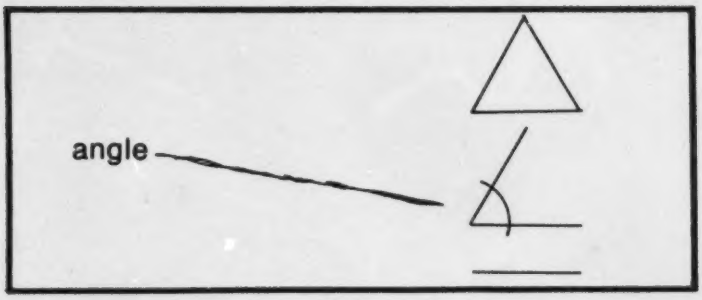


126



11.2b Identifies parts of a circle.

Look at this question. Which figure goes with the word "angle". A line has been made to join the name and the figure. Make a line from the word to the figure beside P2 on page 36 of your answer book.



Look at these parts of a circle.
Make a line from the name to the drawing that shows that part of the circle.
Make your answers to these questions on page 36 of your answer book.

127 Diameter

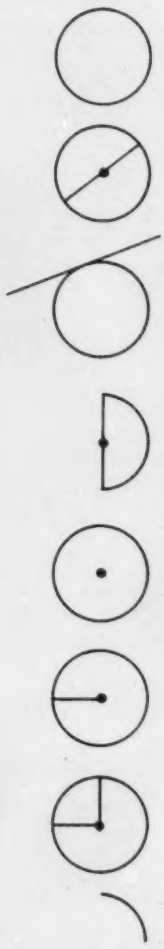
128 Arc

129 circumference

130 centre

131 radius

132 quadrant



12.1a Substitutes in, and evaluates simple formulae.

Look at this question. What is the value of x? The answer is 8. Write 8 beside P3 on page 36 of your answer book.

Example

If $a + 6 = x$
and $a = 2$
What is the value of x? 8

Answer these questions. Write your answers on page 36 of your answer book.

133

If $3 + a = x$
and $a = 4$
What is the value of x?
_____.

134

If $a + 5 = x$
and $a = 1$
What is the value of x?
_____.

135

If $a + x = 8$
and $a = 5$
What is the value of x?
_____.

The previous numbered page in the original document was blank.

136

If $a - 1 = x$
and $a = 5$
What is the value of x?
_____.

137

If $10 - a = x$
and $a = 3$
What is the value of x?
_____.

138

If $a - x = 6$
and $a = 8$.
What is the value of x?
_____.

139

If $x - a = 9$
and $a = 0$
What is the value of x?
_____.

12.1b Solves simple equations of the form: $4 \times a = 12$.

Look at this question. What is the answer? The answer is 5. Write 5 beside P1 on page 37 of your answer book.

Example

$$2 \times a = 10$$
$$a = 5$$

Answer these questions. Write your answers on page 37 of your answer book.

140

$$3 \times a = 12$$
$$a =$$

141

$$a \times 9 = 27$$
$$a =$$

142

$$11 \times a = 121$$
$$a =$$

143

$$60 \div a = 15$$
$$a =$$

144

$$18 \div a = 3$$
$$a =$$

145

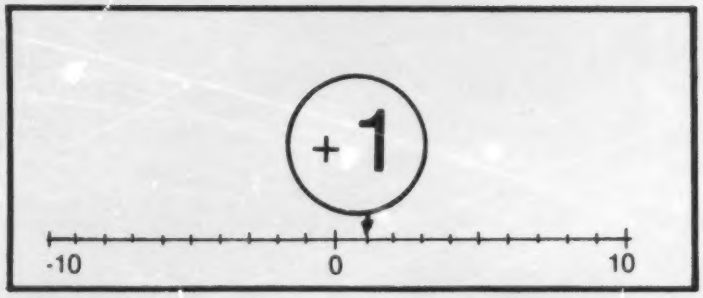
$$a \times 12 = 144$$
$$a =$$

146

$$3 \times a = 9$$
$$a =$$

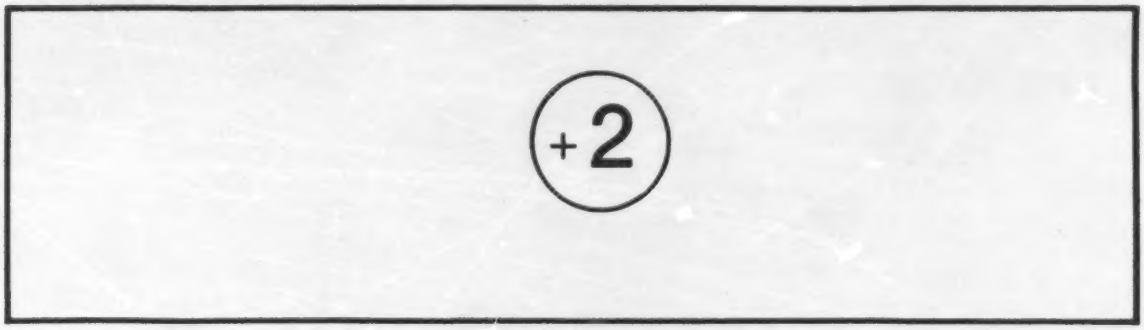
12.3 Identifies and orders integers.

Look at this integer. Which point on the number line represents the integer? It's position is marked with an arrow. Mark its position on the number line beside P2 on page 37 of your answer book.

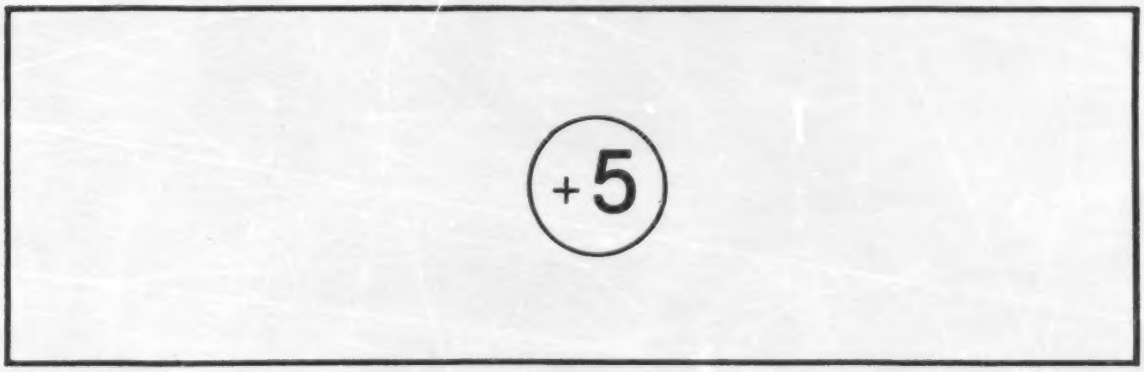


Look at these integers. Mark their positions on the number lines on page 37 of your answer book.

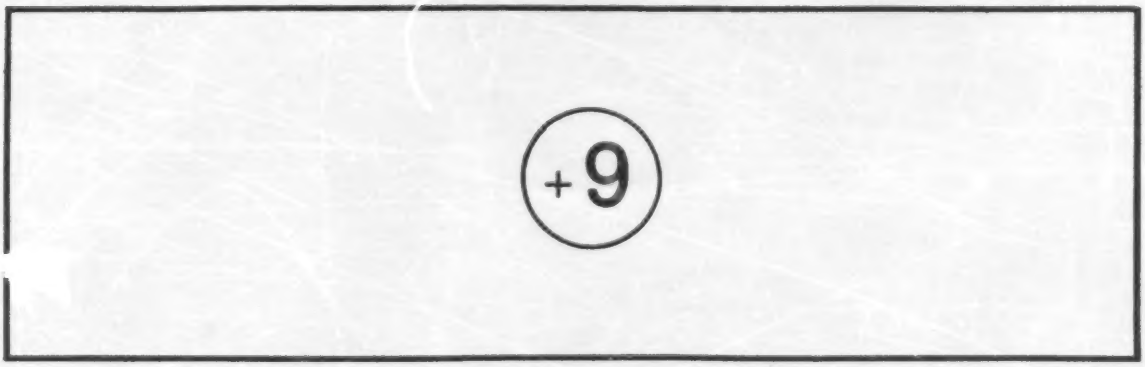
147



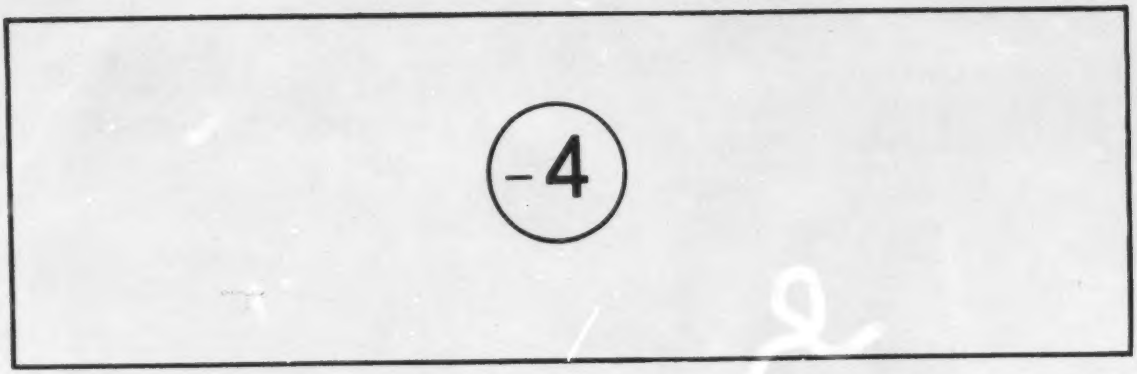
148



149



150



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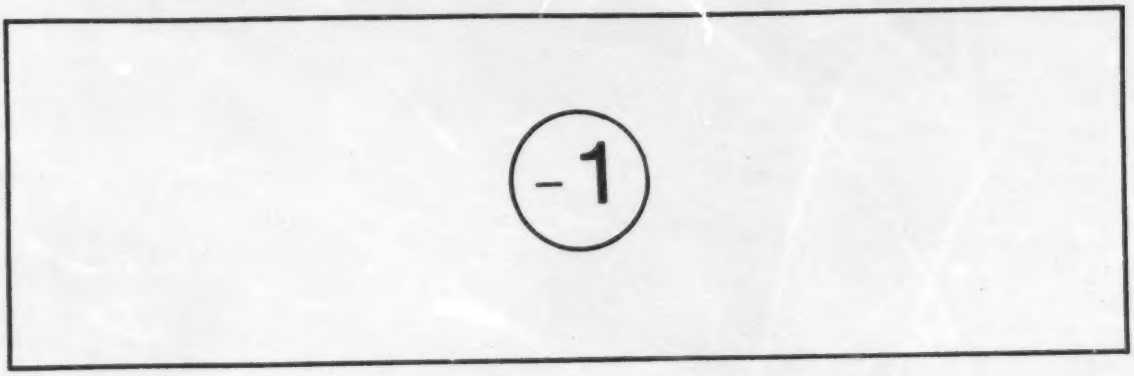

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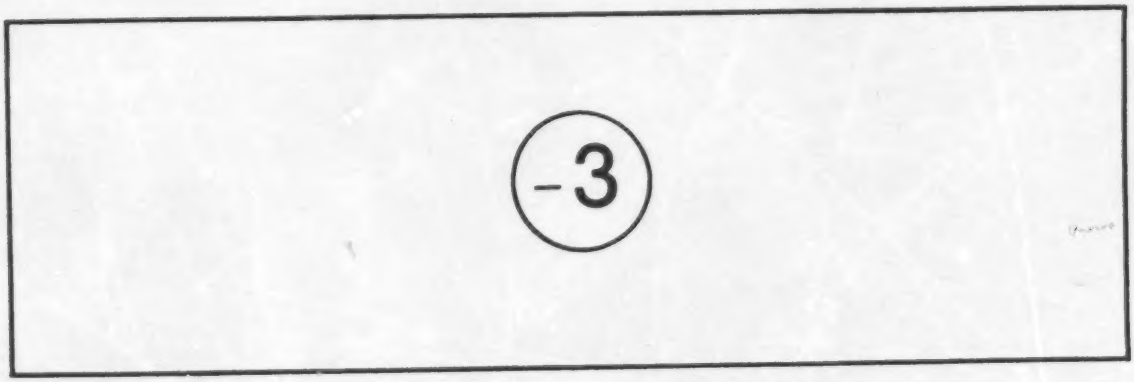

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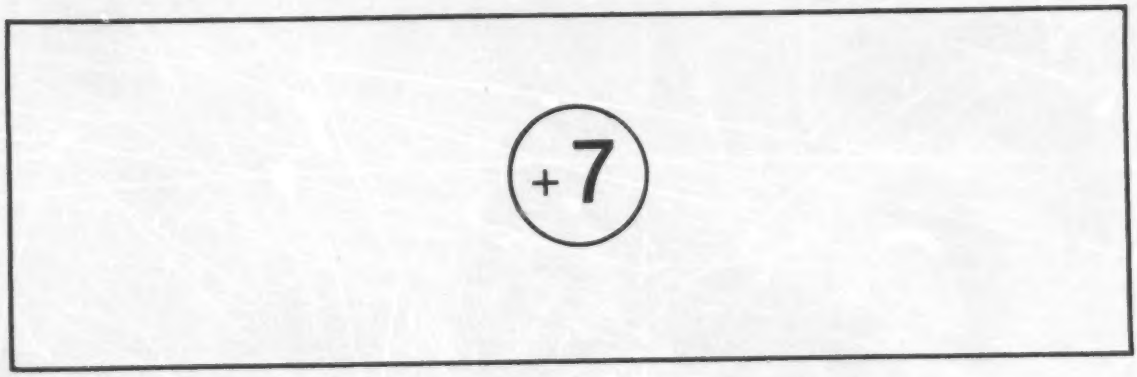

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